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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/802,039 | 03/17/2004 | Wenxi Huang | 35394/256 | 3460 |

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EXAMINER

YU, MELANIE J

ART UNIT PAPER NUMBER

1641

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/802,039

Applicant(s)

HUANG ET AL.

Examiner

Melanie Yu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 95,99 and 109-125 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 95,99 and 109-125 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. <u>22122005/05102005</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/14</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed 14 October 2005 has been entered. Claims 1-94, 96-89 and 100-108 have been canceled. Claim 95 is currently amended.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 28 November 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Withdrawn Rejections

3. Previous rejections under 35 USC 112, second paragraph and 35 USC 103(a) over Nelson et al. in view of Nelson et al. have been withdrawn.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 95-124 are rejected under 35 U.S.C. 102(e) as being anticipated by Boschetti et al. (US 2003/0218130).

With respect to claims 95 and 124, Boschetti et al. teach a biochip (par. 0043) device that comprises a substrate comprising a surface that is coated with a hydrogel polymer blend composition (par. 0063) wherein the composition comprises: a first photo-crosslinked polymer (par. 0073; 0080), wherein the photo-crosslinking results from reacting benzophenone groups on the first polymer (photo initiator of 2,2'-dihydroxy-4-methoxybenzophenone is a benzophenone group, par. 0120); and a different second polymer that is different from the first polymer (binding functionality can be nucleic acids, which can be attached to the cross-linked

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polysaccharides, par. 0049, more than one polysaccharide is present in the hydrogel, par. 73-75) that comprises a selective binding functionality (par. 0049; 0080), wherein the device is a probe for a mass spectrometer (par. 0011). In Boschetti et al. more than one polysaccharide may be present in the device (par. 73-75), one polysaccharide is considered a first polysaccharide and may be crosslinked to another polysaccharide, a second polysaccharide, through a cross-linking agent (par. 73-77). The second polysaccharide may comprise a binding functionality (par. 79 and 49). Therefore a first polysaccharide comprises a crosslinking agent and a second polysaccharide comprises a binding functionality. The benzophenone groups of Boschetti et al. are a photo initiator and are used to crosslink the polysaccharide with cross-linking agents. Therefore, the photo-crosslinking of Boschetti et al. results from reacting benzophenone groups on the first polysaccharide. Furthermore, the polysaccharides of Boschetti et al. are crosslinked with themselves and with each other (par. 73-75).

Regarding claim 99, the first and second polymers comprising a polysaccharide of dextran (first and second polymers are crosslinked and therefore both contain the polysaccharide, par. 0073-0074).

Regarding claims 109-114, Boschetti et al. teach a selective binding functionality being an carboimidazole, a hydrophilic moiety, a group for covalently binding a molecule, a biospecific binding functionality being an antibody or nucleic acids (par. 0049).

With respect to claim 115, Boschetti et al. teach a matrix for laser desorption/ionization mass spectrometry applied to the surface (par. 0142).

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Regarding claims 116 and 117, Boschetti et al. teach the hydrogel physically attached to the surface through an anchor and covalently bound to the surface by being covalently bound to the anchor (par. 0006).

With respect to claims 118-121, Boschetti et al. teach the thickness of the hydrogel polymer blend composition (coating) being a film having a thickness of at least 10 microns (par. 0078), which encompasses the recited thickness of about 1 to about 10 microns. Boschetti et al. also teach the substrate comprising aluminum (par. 0013), comprising a primer layer that comprises silane (par. 0014), and the substrate comprising metal oxide (par. 0013).

Regarding claims 122 and 123, Boschetti et al. teach the hydrogel being a uniform layer on the surface (homogeneous layering indicates uniform layering, par. 0180-0182), and the hydrogel forming discrete spots on the surface (par. 0099; 0114).

Claim Rejections - 35 USC § 103

2. Claim 125 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boschetti et al. (US 2003/0218130) in view of Hillenkamp et al. (US 5,118,937).

Boschetti et al. teach a device that comprises a substrate comprising a hydrogel polymer blend composition, but fail to teach the hydrogel polymer blend composition comprising an energy absorbing moiety.

Hillenkamp et al. teach a matrix comprising an energy absorbing moiety (col. 3, line 64-col. 4, line 19), in order to provide strong absorbers in a wavelength range.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the device of Boschetti et al., an energy absorbing moiety as taught by Hillenkamp et al., in order to prevent desorption of analyte.

Response to Arguments

3. Applicant's arguments filed 14 October 2005 have been fully considered but they are not persuasive. On page 5 of applicant's arguments, applicant argues Boschetti et al. does not teach a second polymer and instead shows a first dextran and a functionalized monomer. Applicant also argues that the functionalized monomer is not a polysaccharide. However, the Boschetti et al. comprises more than one polysaccharide. A first polysaccharide comprises a benzophenone group resulting from photo initiation and a second polysaccharide comprises a binding functionality as described above. Therefore the final product of Boschetti comprises photo-crosslinked polymers wherein at least one polymer comprises a benzophenone group that has been photo-reacted and at least one polymer comprises a binding functionality.

4. Applicant also argues that Boschetti teaches a benzophenone photoinitiator, but does not describe the photoinitiator attached to the dextran polymer. However, the claim requires "photo-crosslinking resulting from reacting benzophenone groups", and the benzophenone groups of Boschetti are used to initiate a photo-crosslinking reaction. The limitation is drawn to a product by process and does not require benzophenone groups attached to a dextran polymer.

Furthermore, as applicant stated in the interview on 22 December 2005 the benzophenone groups are present on the polysaccharide of Boschetti, although the groups are not part of the cross-linking.

5. Applicant's arguments, see page 6, filed 22 December 2005, with respect to rejection under 35 USC 103(a) have been fully considered and are persuasive. The rejections of claims 95, 96, 99 and 100 under 35 USC 103(a) have been withdrawn.

Conclusion

No claims are allowed.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

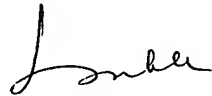
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie Yu
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12/22/05